

Claims

- [c1] A passive solar tracker and concentrating system comprising
- a. a two-axis gimbal system in which a pair of containers partially filled with a volatile fluid are affixed to two opposing sides of the frame attached to each of the two orthogonal axes, each of said pair being in fluidic communication by means of a connecting tube, and each of said containers being shielded by a shade, so that the equilibrium orientation of the gimbal system corresponds to that where the plane defined by the inner gimbal frame faces the sun normally as a result of each of said pairs of containers being equally irradiated by the sun;
 - b. a light concentrating element attached to said two-axis gimbal system, which focuses the incident solar radiation; and
 - c. a target which intercepts said focused solar radiation.
- [c2] A passive solar tracker and concentrating system according to claim 1 wherein said containers holding said volatile fluid are segmented and each of the sub-chambers is in fluidic communication with the corresponding one on the opposite side of the associated axis

by means of a connecting tube.

- [c3] A passive solar tracker and concentrating system according to claim 2 wherein each of said sub-chambers is substantially filled with said volatile fluid.
- [c4] A passive solar tracker and concentrating system according to claim 2 wherein said volatile fluid increases its vapor pressure by more than approximately 10kPa per degree Celsius increase in its temperature.
- [c5] A passive solar tracker and concentrating system according to claim 1 wherein said light concentrating element is a lens.
- [c6] A passive solar tracker and concentrating system according to claim 5 wherein each significant mass element is balanced by an equal mass element positioned at a diametrically opposite location through the point where the two axes of the gimbal intersect.
- [c7] A passive solar tracker and concentrating system according to claim 1 wherein said light concentrating element consists of a reflective dish and a mirror positioned in front of the focus of the dish.
- [c8] A passive solar tracker and concentrating system according to claim 7 wherein the reflective dish has a

parabolic shape.

- [c9] A passive solar tracker and concentrating system according to claim 7 wherein each significant mass element is balanced by an equal mass element positioned at a diametrically opposite location through the point where the two axes of the gimbal intersect.
- [c10] A passive solar tracker and concentrating system according to claim 1 wherein said target is an optical fiber or fiber bundle.
- [c11] A passive solar tracker and concentrating system according to claim 1 wherein said target is a solar panel.
- [c12] A passive solar tracker and concentrating system according to claim 1 wherein said target is a thermally driven engine such as a Stirling engine.